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Proceedings of the Club

DECEMBER 13, 1898.*

Vice-President Allen in the chair, thirty-five persons present.

Three new members were elected; two new nominations for membership were made: Mrs. Horace See, 50 W. 9th Street, and Ex-Chief Justice Charles P. Daly.

The paper of the evening was by Miss Marie L. Sanial on Nature Study in the Public Schools. The following is an abstract:

"The introduction of nature study in the lower grades of the public school is a new departure in elementary education. Of course, it is not intended to teach natural history as a science to children of a tender age. The purpose in view is simply to draw from nature certain object lessons calculated to aid in the orderly development of the perceptive and reasoning faculties. The method of instruction should rest upon two fundamental principles fully established by the observed facts of psychology. One is the fascinating power of visible motion upon the child's mind. The second, intimately connected with the first, is the natural process of mental development. This process, consisting as it does in observation and comparison, is essentially analytical and is, therefore, the very reverse of the constructive or synthetical process of nature herself. While nature proceeds in her work from the low and apparently motionless forms to gradually higher ones gifted with increasing powers of displacement, the human mind proceeds in its observation from the highest and most active to the lowest and most passive. The first object lesson should, therefore, be taken from the animal world and from those plants which, by their bright colors, rapid development and other striking features, are most suggestive of motion. If her material be taken from the vegetable world, for instance, the teacher should make such use of it or devise such artifices as will enable the pupils to see, follow and observe "the plant in action," so that their interest may steadily increase as they successively and spontaneously

* Omitted by mistake from its proper sequence in the last number.

discover that the apparently lifeless thing before them actually feeds, drinks and breathes, grows and moves, feels and acts, likes and dislikes, enjoys and suffers, lives and dies.

“In the examination of parts the following order, when practicable, will best conform with our fundamental principles: 1. The fruit; 2. The flower; both presenting qualities of color, form, taste and smell, which, together or singly, first commend them to the child's attention on the threshold of plant life investigation; qualities which correspond in some respect to the phenomena of visible motion in animal life.

“Descending by degrees from these upper and last products of vegetable development, will be observed in succession, the leaf, the stem and last the root.

“In other words we must begin with facts of a primary order, tending to develop attention, perception and observation. These first facts, simple and detached, apparently unrelated, will of themselves lead to the observation of other facts, more complex, more and more intertwined and at last obviously related; that is, facts of a higher order, tending to the exercise of judgment by comparison and consequent classification. When we shall have reached this point, our minds will be ready for the discovery, by induction, of still higher facts, imperceptible to our senses without the powerful aid of human reason, fully developed; we shall be ready for generalization. The whole philosophy of nature study—and we may say the whole philosophy of teaching—lies in the observance of this order.

“It is essentially the work of the teacher, who has reached the point of developed reason, to classify her facts, so that her pupils may without feeling her hand or her influence, be made to look for just such facts as are suited to their own intellectual stage. Not so much on the variety or brilliancy of her illustrations, as upon the natural, logical order in which she will imperceptibly compel their observation of facts will depend her success.”

Miss Sanial added also an account of her experience as supervisor of nature study in the vacation schools of New York City, and indicated the difficulty at present confronting the subject on account of lack of provision for supply of material.

Miss Sanial's paper was followed by an extended discussion of

the needs of further provision for nature study in the public schools, participated in by Mr. Hyatt, Mr. Wade, Mr. Conroy, Mrs. Britton, the secretary and others, and followed by the adoption of the following resolution offered by Dr. Britton :

Resolved, That a committee of five members be appointed by the chair to prepare a presentation of the desirability of a systematic supply of nature study material to the public schools for submittal to the President of the Board of Education after approval by the club.

Miss Sanial exhibited an interesting series of mounts and cards showing the admirable work done in nature study in the vacation schools.

A large collection of photographs of wild flowers was exhibited by Mrs. Britton, displayed upon the wall facing the club. These photographs, the work of Mr. Henry Trott, of Philadelphia, are excellent for school or other illustrations. Mrs. Britton also commented upon the good beginnings made in New York and Brooklyn in hanging nature pictures in schools.

WEDNESDAY EVENING, MARCH 29, 1899.

Meeting held in the large hall of the College of Pharmacy.

Dr. Rusby in the chair. 60 present.

Four new members were elected : Hr. W. H. Lewis, Jr., 11 East 35th Street, nominated by Dr. H. H. Rusby ; Miss Marion Shutes, 168 West 120th street, nominated by Miss Marie L. Sanial ; Miss Elizabeth Anne Jacobs (Public School 117), 117 E. 82d Street ; Miss Nellie Geraty (Public School 96), 39 E. 76th Street.

Dr. Britton reported as chairman of committee on nature study, that finding it impracticable to get the members of the committee together to call on the President of the Board of Education, he had transmitted the committee's report to President Little by mail. The report of the committee was accepted and the committee discharged.

The first paper was by Professor Francis E. Lloyd, on the Functions of the Suspensor, and was illustrated by drawings and by a series of microscopes exhibiting slides.

Mr. Lloyd described the structure of the suspensor typical of the genera *Galium*, *Asperula*, *Vaillantia*, etc., and showed that haustoria are formed which absorb food from the endosperm. The large basal cell of *Capsella* was shown also to possess a function quite similar, because, as the preparations showed, the basal cell destroys the tissue of the inner integument in its vicinity and thus becomes embedded in it.

The second paper was by Mrs. E. G. Britton, on the Ferns of the Eastern United States, illustrated by the stereopticon.

Mrs. Britton exhibited mounted specimens of all the rarer ferns of the Eastern States, many of them of her own collection, giving the range of each species. She also exhibited lantern slides made from photographs of these ferns taken as they grow. Those of the maiden-hair, hart's tongue and beech-fern were taken from the fernery in the New York Botanical Garden; five of them were views from the Catskill Mountains taken by Mr. Van Brunt; Mr. Hulst contributed one from Lake George, and Mr. Lorenz five from Willoughby Lake, Vermont. Others were Adirondack views taken by Stoddard. Mrs. Britton stated that she would continue to fill in the omissions where she had not been able to obtain photographs, and hoped to complete her collection in the future. She expressed the hope that as the interest in ferns increases the love of them would likewise grow, and that the rarer ones would not be exterminated by useless transplanting to locations where they will not survive. It was stated that thus far Rutland County, Vermont, shows the greatest number of ferns of any of the Eastern States, having 42 species and ten varieties. There are seldom more than 20 species in any locality, unless there should be a great variety of soil and habitat as at Jamesville, N. Y., where Prof. Underwood has found 34 species. Long Island has 25, and Staten Island 23 species.

In further illustration, the Torrey Club collection of ferns and many sheets from the Columbia collection, were exhibited, and a series of photographs from Professor Atkinson, showing the variations produced by cultivation of *Onoclea sensibilis*.

An exhibit to illustrate *Onoclea sensibilis* in the fossil state was also furnished by Dr. Hollick, the same being of special interest as the only living species which is actually found fossil.

Mr. Wm. A. Lorenz, of Hartford, Conn., was introduced by Dr. Rusby as one who had collected 34 species of ferns about Willoughby Lake, Vermont. Mr. Lorenz described the lake and neighboring cliffs with the illustration of lantern slides, and spoke of the hundreds of plants of *Woodsia glabella* flourishing there close together, fruiting at 1 inch or at 6 inches. In the sunshine it becomes more leathery as if passing into *W. hyperborea*. Mr. Lorenz also finds *Dryopteris spinulosa dilatata* reverting there to the type of the species.

Mr. W. N. Clute exhibited several fronds of *Dryopteris simulata*, collected by him at Babylon, L. I., last summer, and pointed out a distinction from *D. Thelypteris* in the fact that each pinna of *D. simulata* is not of uniform breadth but broader near the middle; it fruits chiefly in the shade, and *D. Thelypteris* in the sun.

Dr. Rusby spoke of the beauty of the ferns on the mountain slopes near Plainfield, N. J., and at localities near there for *Asplenium ebenoides*, *Cystopteris fragilis*, and *Cheilanthes lanosa*.

Mr. Clute remarked that he had collected 16 species of ferns within a mile of Fort Lee, and 59 species are now growing at the Botanical Garden.

Adjournment followed.

EDWARD S. BURGESS,
Secretary.